



Special Section: The economies, ecologies and politics of social forestry in Indonesia

Research Article

Mainstreaming community-based forest management in West Sumatra: Social forestry arguments, support, and implementation

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Abstract: Although social forestry in Indonesia is envisioned as a policy for recognizing local practices to forest management, research is still limited. This research describes conditions of social forestry policy in West Sumatra Province as a form of mainstreaming community-based forest management. This paper provides the context of social forestry arguments, its support, and subsequent implementation. The research approach is qualitative, using a case study method. Data collection was conducted through unstructured interviews, field observations, and document studies. The analysis used categorization and coding, historical analysis, document analysis, and descriptive policy analysis. The findings revealed that the arguments for social forestry schemes were based on the persistence of state forest conflicts, forest degradation and deforestation threats, as well as human resource limitations of forestry officers. The Provincial government then initiated stakeholder support, mainly from non-governmental organizations. Social forestry implementation at the site in West Sumatra thus focused on providing development assistance programs after granting management rights to local people, as well as initiating similar schemes in other villages. Our discussions considered challenges that should be addressed, including the approach to granting management rights to secure a management area, the process of developing participatory institutions, synchronizing provincial government policies to overcome forest degradation and deforestation, and initiating activities for strengthening community solidarity and agency.

Keywords: management rights; institutions; social forestry; development assistance programs

1. Introduction

Several studies show that community-based forest management (CBFM) has succeeded in some developing countries, such as India, Thailand, Nepal, Vietnam, Ghana, Chinese Taipei, Tanzania, Guatemala, Sudan, Peru, Nicaragua, and Mexico (Tole, 2010). Wiersum (2004) also concluded that CBFM achieved a significant level of support in the early 21st century as a strategy for tropical countries, and thereafter spread to other developed countries in Europe, North America, and Australia. Furthermore, researchers believe that an effective CBFM strategy can streamline the government's work administratively and ensure equitable benefit distribution for local and indigenous people (Nayak & Berkes, 2008; Suharjito, 2009).

CBFM is a forest management system on any lands within local community territory and state forests in form of collaborative management (Wiersum, 2004). The concern with CBFM development has encouraged various research on CBFM activities. Researchers have described a number of CBFM activities, such as those focused on institutions (Pagdee, Kim, & Daugherty, 2006), conservation (Vodouhê et al., 2010; Sawitri and Subiandono, 2011; Pietrzyk-kaszy et al., 2012), knowledge (Ito et al., 2005), decision-making (Hujala, Tikkanen, Hanninen, & Virkkula, 2009), and

goal attainment (Masozera, Alavalapati, Jacobson, & Shrestha, 2006). Gilmour (2016) also revealed that CBFM evolved concurrently with other development events related to the forestry sector. Recent issues include climate change policy, illegal logging eradication, and payment for environmental services, which are generating widespread attention among the national and regional governments in Indonesia.

The West Sumatra Provincial Government (WSPG) through the West Sumatra Forestry Agency (WSFA) has encouraged social forestry (SF) schemes as a form of CBFM mainstreaming. The WSPG has allocated 500,000 hectares of the state forest for SF schemes as a CBFM development target in West Sumatra since 2012. The target could fulfill 20% of the national target. There is no other provincial government in Indonesia that has set such an ambitious target. As a result, WSPG has become a pilot province of SF development in Indonesia.

In the last five years, lessons have been learned from the WSPG's policy in SF development regarding their arguments, support, and implementation frameworks. However, there has been no scientific research to reveal the lessons learned from SF development in West Sumatra. Such research is important to ensure the achievement of SF objectives at local, regional, and national levels. The lessons learned from the WSPG also provide a wealth of research opportunities due to the positive track record of local forest management schemes instituted by the Minangkabau people, the dominant ethnic group in West Sumatra (Michon et al., 1986; Martial et al., 2012; Hamzah et al., 2015; Asmin et al., 2016; Asmin et al., 2017a).

WSPG's policies are therefore seeking to mainstream CBFM as a broader development strategy. According to Dunn's (1981) theory, the arguments in favor of a policy are related to the rationale for that policy. Policy reform over time might be influenced by various events that relate to forestry development at regional and national levels. Furthermore, current policies form the rationale for shaping policies elsewhere in Indonesia and a basis for developing a broader policy approach (Dunn, 1993; Sutton, 1999). Meanwhile, support for SF development include governmental activities (such as program, actions, and schemes) and regulations. Regarding the policy definition from Hill and Hupe (2002), governmental activities are also considered as policy. Simultaneously, the implementation of the activities is part of the policy process (Dunn, 1981; Hoppe, 1993). In relation to SF development, implementation could involve all efforts to realize programs, actions, and schemes as well as regulations.

According to Ministerial Regulation of Environment and Forestry No. P.83/MenLHK/Setjen/Kum.1/10/2016, SF is a forest management system by a local community outside or inside a state forest. There are four main forms of SF schemes, i.e. community plantation forest (*hutan tanaman rakyat*, HTR), community forest (*hutan kemasyarakatan*, HKm), village forest (*hutan desa*, HD), and customary forest (*hutan adat*, HA). The SF schemes are allocated for three formal categories of state forest in the Indonesian system, i.e. production, protection, and conservation forests. The HTR scheme is only applicable in production forests, while HKm and HD schemes are provided for protection and production forests. Meanwhile, the HA scheme occurs in communal forests, including in all three formal categories of state forest areas.

Conceptually, SF initiatives have evolved from an initial focus on the biological constraints of trees and forests, to the socio-economic constraints, to the local institutional constraints, and most recently to the government policy constraints (Dove, 1995; Wiersum, 1999; Oliver, 2014). Wiersum (2004) has also stated that all SF initiatives are forms of CBFM mainstreaming. Based on these concepts, this research aims to describe SF initiatives in West Sumatra by elaborating the provincial government's arguments, support, and implementation. We start with the history of CBFM policy and the characteristics of SF development in West Sumatra, because the essence of CBFM history in the province contain the governance background to initiate all forms of SF schemes. We then explain WSPG support for SF initiatives by identifying all forms of programs, actions, schemes, and regulations. The paper further explains government policy efforts to implement SF initiatives. Government activities indicate the processes for initiating an SF scheme. Related to the arguments,

support, and implementation, we also summarize the CBFM policy in other countries. We then consider our results to discuss four challenges that should be overcome to ensure the objectives of SF initiatives.

2. Materials and Methods

Our research uses a qualitative approach, which refers to meanings, concepts, characteristics, and description (Berg, 2001). The research process is characterized as inductive, interpretive, and constructivist (Bryman, 2004). Therefore, this research requires dialectical interaction between researcher and research object (Guba & Lincoln, 1994), allowing empathy, intentionality, and interpretation of subject statements and actions which are known as hermeneutics (Suharjito, 2014). Our method is a case study of governmental activities and SF schemes related to CBFM policy in West Sumatra. This research was conducted from September 2015 to August 2016.

Data were collected using various techniques, including unstructured interviews with 13 key informants from governmental officers and non-governmental organization (NGO) activists, field observations, and document studies. The determination of informants is based on their roles within governmental and NGO structures, their experiences related to CBFM or SF activities, and their understandings of local history and culture for ensuring reliability (Davis & Wagner, 2003). For governmental officers, we interviewed the Head of WSFA with 30 years of experience in West Sumatra, the Head of Social Forestry Task Force with 26 years of experience, and some key informants from WSFA officers with minimal experience 15 years, both in provincial and district offices. For NGO activists, we interviewed a project manager with 10 years of experience in West Sumatra and some community facilitators who facilitated communities SF development that had minimal 5 years of experience.

Field observations aimed to observe the implementation of SF schemes, such as the village forest in Simancuang, as well as formal and informal meetings related to SF programs and activities. Meanwhile, document review consisted of governmental regulations, reports, statistical information, photos, recordings, and maps. Our analysis used categorization and coding, historical analysis, document analysis, and descriptive policy analysis, and was further strengthened by our own knowledge about the system and local language.

This research focuses on the WSFA's arguments, their support, and implementation that led the vast proliferation of SF schemes in West Sumatra. The argument related to WSFA's reasons emerged from a historical review of CBFM development in West Sumatra, which is further evident from the selection of particular SF schemes. To develop the SF schemes, WSFA created and implemented various programs, actions, and regulations that were also assisted by NGOs and other governmental institutions. Meanwhile, WSFA's implementation mechanisms were studied by reviewing the existence of West Sumatran CBFM task forces and development assistance programs. We compared the research findings with the research reports from other developing countries and discussed it in the context of: (1) the granting of management rights, (2) institutions, (3) challenges of forest degradation and deforestation, and (4) initiation of development assistance programs.

3. Results and Discussion

3.1. Government arguments to encourage SF development

3.1.1. The history of CBFM in West Sumatra

Government and corporate roles have dominated forest resource management in West Sumatra since the 1970s. Based on the concession permits of the forestry sector (Brown, 2001), the period from 1980 to 1998 was one of timber extraction in West Sumatra. Almost 40% of the state forest of West Sumatra was extracted by timber corporations (Brown, 2001; KemenLHK, 2015).

Meanwhile, local community roles tended only to be recognized in the non-state forest areas through community empowerment programs, which were funded by the government. According to our informants, there were various activities of community empowerment, such as reforestation and afforestation of pine in the 1970s, followed by community forests in the early 1990s, micro credit for agro-silvo-pastoral activities, and sericulture in the 1990s.

The forest cover of West Sumatra declined steadily since 1990, especially in state forest areas. The degradation and deforestation rates of state forests are high, although the forest cover percentage is still higher than other provinces in Sumatra (KemenLHK, 2015; FWI/ DFW, 2001). Based on land use change data from the WSFA, approximately 4 % of primary and secondary forest areas have changed into shrubs in the period from 2000 to 2013. Degradation and deforestation problems have become a priority issue in WSFA's strategic planning since 2000. Regarding WSFA's financial documents between 2006 and 2015, the financial allocation for land and forest rehabilitation (LFR) and forest protection and security (FPS) activities were higher than other forestry administration activities.

LFR activities were more intense after the Indonesian Government initiated the National Movement of Land and Forest Rehabilitation in 2003. The Indonesian Government also initiated other movements to strengthen LFR activities with familiar slogans like "One Person One Tree" and "One Billion Indonesian Trees" between 2010 and 2014. These movements provided free seedlings and established many nurseries managed by local communities. However, LFR activities were only able to handle circa 20% of 500,000 hectares of degraded lands in West Sumatra (Dinas Kehutanan Provinsi Sumatera Barat, 2011). There are various challenges to rehabilitate degraded lands, especially related to LFR outcomes and impacts on forest ecosystem improvement, local participation, and local community welfare (Nawir et al., 2008; Dinas Kehutanan Provinsi Sumatera Barat, 2011).

The WSFA response to degradation and deforestation issues included increasing law enforcement against illegal logging activities as a part of FPS activities. Law enforcement was strengthened with the Presidential Instruction on Illegal Logging Eradication in 2004. WSFA conducted repressive and preventive actions that involved other law enforcement agencies, including the police, army, and prosecutors. Furthermore, since 2005, WSFA initiated a village-based forest protection program that encouraged the participation of village governments by establishing a task force of forest protection at the village level. To provide legal support for FPS activities, WSFA also formulated the Provincial Regulation on Community Participation in Forest Protection in 2015.

The implementation of LFR and FPS activities deals with two main challenges. Based on our interviews, the first challenge is the lack of WSFA's technical officers to facilitate all LFR and FPS activities (Dinas Kehutanan Provinsi Sumatera Barat, 2012a). The number of technical officers, such as extension officers and forestry police officers, is inadequate, given the extent of state forest and the number of villages in West Sumatra. According to WSFA's statistics in 2015, the number of extension officers and forestry police officers was only 75 and 150 persons, respectively. If we compare the number of extension officers with the total villages near the state forest areas, the extension officers could only cover 10% of these villages. Meanwhile, if we compare the number of forestry police officers with the extent of state forests, one forestry police officer must protect ten thousand hectares of state forest.

Another challenge is communal claims (*ulayat*) on state forests by local communities. Our informants revealed that, in formal and informal meetings, local communities frequently contested government considerations in the context of state forest status and function. Local people have criticized the unilateral actions of the government in the designation of their communal lands as state forest. This complaint is often made by other communities and communal claims that represent tenurial problems throughout Indonesia (Nurrochmat, Darusman, & Ruchjadi, 2014). Our informants also revealed that communal claims have complicated law enforcement, one of the jobs of the government.

To cope with these challenges, WSFA began to encourage more intensively mainstreaming CBFM activities when the community plantation forest (HTR) scheme was introduced in 2007. HTR was based on Forestry Ministerial Regulation No. P.23/Menhut-II/2007. Regarding the WSFA reports between 2009 and 2012, WSFA frequently organized the explanation of policies, extension, and training on HTR in Sijunjung District and South Pesisir District. Both districts have acquired 5,345 hectares of state forest for HTR allocation through Forestry Minister Decree No. SK.402/Menhut-II/2009 dated July 6, 2009, and SK.356/Menhut-II/2009 dated June 18, 2009. However, based on government documents and our interviews, the licensing process took three years, while only one third of the HTR allocations were distributed due to a slowdown in the process, i.e. limited extension capabilities, weak mentoring, and complicated administration processes.

When village forest (HD) and community forest (HKm) schemes were introduced through Forestry Ministerial Regulation No. P.49/Menhut-II/2008 and No. P.37/Menhut-II/2007, respectively, WSFA also began facilitating the HD and HKm schemes since 2011. There are two pioneer villages for the HD scheme, i.e. Simanau Village in Solok District and Simancuang Alam Pauh Duo Village in South Solok District. Based on West Sumatra Governor Decree No. 522-43-2012 and 522-44-2012 dated January 19, 2012, the first HD area in West Sumatra included 1,783 hectares of protected forest. According to our informants, the NGO KKI Warsi facilitated the licensing for both villages, partnering with them since 2009. The licensing process was relatively fast: the verification process took only six months after the local community submitted its proposal, while the permits issuance took three months.

Thereafter, WSFA began intensively engaging with two NGOs (KKI Warsi and Qbar) to expand social forestry licensing preparations. Based on meeting documents from 2010-2016, both NGOs organized meetings and proposal documents. KKI Warsi intensively facilitated some local communities for HD schemes in Solok District and South Solok District, meanwhile, Qbar worked intensively to facilitate local communities for HKm schemes in Pasaman District and West Pasaman District. During the workshop on CBFM (on mainstreaming greenhouse gas reduction) on May 31, 2012, the West Sumatra Governor instructed WSFA to expand the implementation targets of HTR, HD, and HKm schemes to 500,000 hectares within five years (2012-2017).

To realize these ambitious targets, WSFA compiled a working plan of SF development to delineate state forests for SF schemes (Dinas Kehutanan Provinsi Sumatera Barat, 2012b) and established a task force under WSFA Head's Decree No. 522.4/1602/RHL-2012. The task force consists of stakeholders from government institutions and NGOs. The duties of the task force are to coordinate all actions to expand CBFM and facilitate local communities to propose HTR, HKm, and HD schemes. The existence of the task force also gained the interest of all districts in West Sumatra through routine intergovernmental meetings and appeals for the support of NGOs, such as KKI Warsi, Qbar, Kemitraan/UNDP, ICS, YCM, Walhi, SSS-Pundi, and FFI. However, based on recent WSFA reports, the task force was only able to facilitate 25% of the total implementation targets (see Table 1).

Table 1. The progress of social forestry schemes in West Sumatra

| Schemes | Proposal from local communities (ha) | Working area from government (ha) | Management license (ha) |
|---------|--------------------------------------|-----------------------------------|-------------------------|
| HTR | 7,745 | 7,745 | 2,246 |
| HKm | 12,118 | 6,296 | 2,595 |
| HD | 106,874 | 50,086 | 38,598 |
| Total | 126,737 | 64,127 | 43,440 |

Source: The WSFA report in 2013 and result of social forestry coordination meeting on February 23-24, 2017

3.1.2. The characteristics of social forestry in West Sumatra

State forest allocations for SF schemes in West Sumatra are in protection and production forests, according to recent regulations of the Environmental and Forestry Minister No. P.83/MenLHK/Setjen/Kum.1/10/2016. The four priority schemes mentioned above (HTR, HKm, HD, and HA) differ in their features (see Table 2).

According to our informants, WSFA provided intensive support for the HTR, HKm, and HD schemes because the regulation for these schemes are more operational than the regulation for HA. Based on WSFA meeting documents, governmental support for the HA scheme began in 2013 after the Indonesian Constitutional Court accepted the judicial review of the *adat* forest definition in 2012. However, the complex procedure, which involves executive and legislative decision-making processes to recognize an *adat* community, is a major obstacle to HA implementation. The government recognizes an *adat* community when the *adat* community has complied with provincial regulations. More efforts at collaborative governance to recognize *adat* communities, as documented by Fisher et al. (2017), is needed.

Table 2. The features of social forestry schemes

| Features | HTR | HKm | HD | HA |
|----------------------------|---|---|---|--|
| Forest status and function | Production forest | Production and protected forest | Production and protected forest | Production, protected, and conservation forest |
| Organization | Farmers group/cooperatives/individual | Farmers group | Village institution | Adat, or customary institution |
| Utilization | According to forest status and function, mainly for timber production | According to forest status and function | According to forest status and function | According to forest status and function |
| License duration | 35 years | 35 years | 35 years | No explanation |
| Form of rights | Management rights | Management rights | Management rights | Communal rights |
| Administration procedure | Only executive (government) | Only executive | Only executive | Executive and legislative (Provincial representatives) |

*community plantation forest (HTR), community forest (HKm), village forest (HD), and customary forest (HA)

Source: Ministerial Regulation No. P.83/MenLHK/Setjen/Kum.1/10/2016 on Social Forestry

Based on the WSFA report, the allocation of management rights for HTR, HKm, and HD are more likely in protection forest than in production forest. Only 14% of the management rights areas are in production forest. HD and HKm have become the priority schemes of WSFA as shown in Table 3. According to the governmental regulations, HD involves management rights to state forest within a village territory, meanwhile, HKm and HTR are management rights of state forest for given farmer groups, on which their livelihoods depend. In accordance with the size of the management areas (see Table 3), HD tends to obtain intensive assistance. This is likely because of the government's past experiences encouraging the first village forests in Simancuang and Simanau Villages.

Table 3 The range of social forestry area by the schemes in West Sumatra

| Range | Scheme | | |
|---------------|--------|-----|-----|
| | HD | HKm | HTR |
| > 2.000 ha | 9 | 2 | - |
| 1.001-2000 ha | 11 | 3 | - |
| 501-1000 ha | 7 | 5 | 2 |
| 100-500 ha | 17 | 18 | 3 |
| <100 ha | 2 | - | - |

Source: WSFA report 2013 and meeting report on social forestry progress on February 23-24, 2017 in Padang

A new local institution was also established to manage the state forest in the context of the HD scheme, i.e. village forest management institution, called *lembaga pengelola hutan nagari* (LPHN). The terminology of LPHN was then applied in establishing local management institutions for each village. For example, based on field observations and document reviews owned by the Simancuang community, LPHN members consist of local and *adat* leaders as well as other local representatives. LPHN was established by a village head decree and has responsibilities and obligations to manage the village forest.

3.2. The support for social forestry schemes

Our observations from formal and informal meetings, which were held by WSFA, indicated that WSFA officers implemented SF policy in accordance with governmental regulations. Their choices of support and the actions they took depended on their understanding of the regulations. If we review the history of CBFM in West Sumatra, government initiatives became more committed after the SF schemes were supported with clear regulations from the central government. WSFA officers consistently emphasize the legal aspects within the program explanation, extension, and facilitation.

According to our informants, WSFA support for HD initiatives in Simanau and Simancuang Villages began to improve in 2011. Their support was in accordance with the operational regulations from the Forestry Ministry through Ministerial Regulation No. P.49/Menhut-II/2008 about Village Forests. Government support for HTR and HKm initiatives were also strengthened after the Forestry Ministry published Ministerial Regulation No. P.23/Menhut-II/2007 about Community Plantation Forests and P.37/Menhut-II/2007 about Community Forests. Meanwhile, government support for HA initiatives has not received adequate support. In fact, WSFA officers have been involved in a series of discussions with the NGOs regarding HA initiatives and local wisdom regarding forest resource management, as in Koto Malintang Village as reported by KKI Warsi in 2004. Koto Malintang also obtained an award as a forestry village at the regional and national levels in 2006. Because there were no clear operational regulations to support local wisdom in HA, follow-up was conducted from a series of discussions, but delivering the recognition terms was still unclear.

The attitude and behavior of WSFA officers in implementing SF policy were generated from their understanding of regulations about social forestry as governed by the last ministerial regulation No. P.83/MenLHK/Setjen/ Kum.1/10/2016. Based on the 2013 WSFA report, the SF schemes include allocating the management rights in state forest to the local communities. The management rights are intended to resolve forestry conflicts. According to our informants, conflicts involved governmental officers and local communities in cases where the government unilaterally determined state forest area boundaries. Consequently, government officers perceived that all

illegal activities in the state forest are forestry crimes and violations. Meanwhile, local communities claimed that the state forest is their communal land in accordance with Minangkabau *adat* law, as applied in Koto Malintang and Simancuang villages (Asmin et al., 2016; Asmin et al., 2017a). In every governmental coordination meeting, implementing the SF schemes is also intended to legalize the socio-economic activities of local communities, previously considered illegal.

Government support for SF development was also in accordance with the limited human resources of WSFA, especially for facilitating the LFR and FPS activities. Furthermore, SF development has become a strategic policy of REDD+ (*reducing emissions from forest degradation and deforestation*) implementation plans in West Sumatra (Hermansah et al., 2013), which focuses on LFR and FPS activities. In the governmental coordination meetings, WSFA expected that SF schemes would increase the LFR and FPS activities to reduce forest degradation and deforestation. The government believed that SF schemes could achieve this.

SF schemes also aim to clarify forest resource management at the village level. Our informants perceived that local management in the protection and production forests has not been allowed to function because state forests were still categorized as common property. WSFA expected that forest resource management would improve, delivering greater benefit by applying SF schemes. Although there is no comprehensive evaluation of their performance, our informants believed that the scheme would give legal certainty, create development assistance program opportunities, build community capacity, and resolve forestry conflicts. Development assistance programs included technical and financial assistance to local communities for infrastructures, business ventures (such as developing forest products, agricultural products, and ecotourism), as well as forest rehabilitation and protection.

The active roles of NGOs have also strengthened the support of WSFA for CBFM. WSFA designed various programs to develop SF schemes, such as program explanation, training, mentoring, and extension. WSFA cooperates with various NGOs. For example, KKI Warsi was one of the NGOs that has encouraged the extension and mentoring of SF schemes in West Sumatra since 2009 (Diana & Sukmareni, 2015). WSFA has also received institutional support from another NGO, Qbar. The existence of both NGOs is important because they have the technical and financial capacity to support the WSFA program. Lacking technical officers and financial support has also encouraged WSFA to cooperate with NGOs.

3.3 The Implementation of Social Forestry in West Sumatra

Regarding the WSFA's document on the 2012-17 working plan of SF development, formerly WSFA emphasized only two forms of SF schemes, HD and HKm. This is likely because those were the only SF schemes included before the government published Ministerial Decree P.83/MenLHK/Setjen/Kum.1/10/2016 on Social Forestry. In the previous regulations, HTR was not yet specifically mentioned as one of the SF schemes. Consequently, there is no HTR phrase in the document. However, the informant statements in the formal and informal meetings indicated that WSFA has also been considering HTR as part of the SF working plan in West Sumatra.

According to the above mentioned document, SF development became an important instrument to promote CBFM in accordance with the local wisdom of the West Sumatran people (Dinas Kehutanan Provinsi Sumatera Barat, 2012b). The objective of SF development is to create wise and prudent forest management based on local wisdom at the village level towards sustainable forests and the prosperity of communities. To realize this objective, WSFA formulated 13 strategies, two of which are unique, i.e. (1) to establish a service center known as the CBFM task force and (2) to consolidate the roles of other sectoral institutions, such as agriculture, fishery, plantations, food security, tourism, infrastructure, water resources, energy and mining resources, corporation (corporate social responsibility), etc.

Based on our interviews and field observations, the WSFA encouraged SF development by facilitating local community proposals, handling working area quotations and management rights permits, explaining the SF schemes, and allocating development assistance programs for HTR, HKM, and HD sites. Our informants stated that it is important to allocate development assistance programs after the local communities obtained the management rights from the government. The WSFA has been able to build cooperative agreements with other governmental institutions in West Sumatra. There are many forms of development assistance programs as a result of the agreements, such as a seed nursery, sericulture, mushroom cultivation, livestock, check dam, retaining dams, ponds, freshwater fish, and forest protection equipment.

WSFA also supported the NGOs to allocate the development assistance programs. For example, FFI is one of the NGOs which has supported HD schemes in South Solok District. FFI has designed multi-year activities as follows: forest protection patrol in the first year, (2) socio-economic activities in the second, (3) institutional roles in the third, and (4) LFR activities in the fourth. WSFA, then, found that the development assistance programs were able to change community behavior from previously destructive attitudes to conservation attitudes. Our key informants explained that the success of CBFM in West Sumatra was measured from the development assistance program initiatives after the local community obtained the management rights.

The NGOs were also encouraged to facilitate the local communities preparing their work plans. There are three work plan documents, i.e. annual work plan, five-year work plan, and 35-year work plan. The work plans contain activities to manage forest resources. In the work plans, WSFA expected that the local communities should develop business activities in accordance with, and not limited to the forestry sector, but also across other development sectors, such as tourism and plantations outside the state forest. Financial support from governmental and private institutions was expected in accordance with the community work plans.

The will of WSFA to facilitate the local communities with many business activities has been supported by various NGOs and related institutions. For example, after Simancuang people obtained HD management rights, they received various development assistance programs from WSFA and NGOs. The development assistance programs were coordinated by LPHN, the special local institution established after the local community obtained management rights. Nevertheless, there is no comprehensive evaluation of the benefits of the development assistance programs. Certainly, as the new management rights are always increasing, the WSFA will require various other development assistance programs, as well as financial resources. Therefore, the WSFA in various forums has always emphasized the importance of development assistance programs for CBFM sites that have been granted management rights. They are trying to leverage additional funding from elsewhere for these activities.

3.4. CBFM Policy in Other Countries

Some developing countries have recognized CBFM as their national forestry strategy. CBFM is an increasingly important form of forest management in developing countries (Agrawal, 2007; Baynes et al., 2015; Gilmour, 2016). We summarized CBFM development in some countries as shown in Table 4. We categorized them based on their arguments, support, and implementation.

Based on the table above, CBFM development is mainly related to forest degradation and deforestation, poverty alleviation, and local community access to state forests. Recent research has supported the view that CBFM can ensure lower and less variable rates of deforestation (Porter-Bolland et al., 2012; Pinyopusarerk et al., 2014; Baynes et al., 2015). However, some researchers were still questioning CBFM performance to ensure conservation efforts and achieve sustainable forest management (Meilby et al., 2014; Rasolofson et al., 2015; Pokharel et al., 2015). Related to poverty alleviation, the effects of CBFM on poverty are also ambiguous because there are numerous reports of benefits from CBFM leading to elite capture (Mahanty et al., 2006; Gilmour, 2016).

Meanwhile, CBFM policy in developing countries does provide management rights over state forests to local communities, but the policy should provide clear rights and responsibilities allowing local community autonomy in the exercise of power (Moeliono et al., 2017).

Table 4. Arguments, support, and implementation of CBFM in some countries

| Countries | Arguments | Support | Implementation |
|-------------|--|--|---|
| Vietnam | to increase forest cover and alleviate poverty (Sunderlin & Ba, 2005; To & Tran, 2014; Moeliono et al., 2017) | part of forest land allocation program in the form of: (1) village forest management and (2) forest management by groups of households and individuals (To & Tran, 2014; Moeliono et al., 2017) | contract-based allocation of forest land to households and individuals (Tan & Sikor, 2011; To & Tran, 2014; Moeliono et al., 2017) |
| Philippines | to abate forest degradation, ensure equitable access, and manage limited resources (Pulhin et al., 2007; Rebugio et al., 2010) | part of national strategy for sustainable forest management with three systems, i.e. central government initiated program, local government initiated program, and traditional forest management (Pulhin et al., 2007; Suharjito, 2009; Rebugio et al., 2010; Hlaing et al., 2013) | Contract-based program for central government initiative, co-management agreement for local government initiative, and self-initiated for traditional forest management (Rebugio et al., 2010; Hlaing et al., 2013) |
| Nepal | to address local livelihoods and abate forest degradation (Gurung et al., 2011; Upreti et al., 2012; Pandey & Paudyal, 2015) | part of national programs in the form of community forestry (CF), leasehold forest (LHF), collaborative forest management (CFM), buffer zone community forestry (BZCF), protected forest (PF) and religious forest (RF) (Pathak, Yi, & Bohara, 2017) | operational co-operation between government and forest user groups for CF and BZCF (Wakiyama, 2004), lease to poor households for LHF (Pathak et al., 2017), collaboration with local people, local government and Department of forests for CFM (Bampton et al., 2007; Pathak et al., 2017), council formation for PF and forests around temples or other sacred religious places for RF (Pathak et al., 2017) |

| | | | |
|------------|---|--|--|
| Bangladesh | to conserve protected area, abate deforestation, and improve socio-economic condition of local people (Chowdhury et al., 2009; (Jashimuddin & Inoue, 2012a; Rashid et al., 2013; Nath et al., 2016) | part of national programs in the form of community forest (CF), co-management of Protected Areas (PA), and Village Common Forest (VCF) (Jashimuddin & Inoue, 2012a; Nath et al., 2016) | land tenure certificate and lease for CF (Nath et al., 2016), co-management council and committee for PA (Chowdhury et al., 2009; Chowdhury & Koike, 2010; Nath et al., 2016), and local management for VCF (Jashimuddin & Inoue, 2012b; Nath et al., 2016) |
| Mexico | to abate forest degradation and deforestation, secure access to forest resources, and improve rural livelihoods (Klooster & Masera, 2000; Bray et al., 2006; Ellis et al., 2015) | Part of agrarian reform program which created <i>ejidos</i> (agrarian nuclei with communal ownership of land) for the landless and supported the restitution of their original communal lands to indigenous groups in the form of <i>comunidades indigenas</i> (Klooster & Masera, 2000; Antinori & Bray, 2005; Ellis & Porter-Bolland, 2008; Flores et al., 2016) | as much as 80% of Mexico's forests are in the hands of communities with collective land grants (Bray et al., 2003; Antinori & Bray, 2005; Ellis & Porter-Bolland, 2008; Cronkleton et al., 2011; Ellis et al., 2015) |
| Tanzania | to promote socio-economic development and protect forest reserves (Meshack et al., 2006; Treue et al., 2014; Scheba & Mustalahti, 2015) | Part of national forestry policy in the form of Village Land Forest Reserve (VLFR), Community Forest Reserve (CFR), and Private Forest (PF), as well as, Joint Forest Management (JFM) (Scheba & Mustalahti, 2015) or known as Participatory Forest Management (PFM) (Treue et al., 2014) | JFM areas are managed by co-management, as owners, between National or Local Government Forest Reserves and village governments, meanwhile, VLFR areas are managed by the entire community, CFR areas are managed by a particular designated group in the community, and PV areas are managed by individual households (Scheba & Mustalahti, 2015) |

| | | | |
|------------|--|--|---|
| Madagascar | efforts to curb deforestation and conserve threatened and endangered species (Raik & Decker, 2007; Raik, 2007; Rasolofoson et al., 2015) | part of national forestry policy through decentralization of forest management known as GELOSE (<i>Gestion Locale Sécurisée</i>) (Raik & Decker, 2007; Raik, 2007; Fritz - Vietta et al., 2009; Cullman, 2015) | by contractual forest management known as GCF (<i>Gestion Contractualisée des Forêts</i>) (Raik & Decker, 2007; Raik, 2007; Fritz - Vietta et al., 2009; Cullman, 2015) |
| Indonesia | to abate deforestation, promote agrarian reform, alleviate poverty, and recognize community rights (Moeliono et al., 2017; Santika et al., 2017) | known as social forestry strategy in form of HTR, HKm, HD, HA, and partnership schemes (Moeliono et al., 2017; Myers et al., 2017) | By granting management rights for HTR, HKm, and HD schemes during 35 years and extendable, full ownership for HA scheme, and rights to collaborate in activities for partnership scheme (Moeliono et al., 2017; Myers et al., 2017) |

Government support for CBFM across these examples indicate that mainstreaming CBFM policy is usually conducted alongside other agrarian reform agendas and state forest management strategies. There are various schemes in CBFM implementation. Those schemes focus on local community participation in state forest management. However, documented evidence of the success of CBFM implementation is mixed. Baynes et al. (2015) and Gilmour (2016) show that CBFM success in developing countries is variable. They suggest that policies need to address factors that influence the success of CBFM implementation, i.e. (1) security of property rights, (2) government support for enabling regulatory frameworks, (3) strong governance and effective local-level institutions, (4) equality of socio-economic benefits for marginalized individuals and groups, (5) viable technology and adequate market access, and (6) supportive bureaucratic culture.

3.5. Rationale for CBFM Development in West Sumatra

This research discussed the WSPG's steps in developing SF schemes. Our discussions were based on the above results. We discussed four focus areas, including: (1) the granting of management rights, (2) institutions, (3) challenges of forest degradation and deforestation, (4) initiation of the development assistance programs. These four focus areas provided a strong rationale for CBFM development in West Sumatra.

The management rights granted in protection and production forests provide a guarantee of management areas for local communities in and around state forests. However, the initiation of SF schemes does not necessarily cover the entire community management area. In Simancuang, the community only proposed certain protected forest areas, while other protected forest areas were not included (see Asmin et al., 2016). Even in Koto Malintang, the community did not agree to any schemes in accordance with government regulations because they believed that their *adat* system could maintain their natural resources (see Asmin et al., 2017a). This is in accordance with the Minangkabau's *nagari* philosophy (Kahn, 1980), i.e. the *nagari* usually has communal forests (*ulayat*), rice fields, dryland fields, houses, ponds, agroforestry lands (*parak*), mosques, and a meeting room (*balai adat*).

The spatial planning of the *nagari*, which is conducted by the community, demonstrates comprehensive and holistic considerations for achieving sustainable development. The Minangkabau people are generally familiar with the spatial concept of forest in three terms, namely forbidden forest (*rimbo larangan*), cultivated forest (*parak*), and reserve forest (*rimbo cadangan*). A similar concept has also been applied by other indigenous peoples in Indonesia such as Baduy, Rumahkay, Dayak, and Ammatoa (Ichwandi & Shinohara, 2007; Ohorella, Suharjito, & Ichwandi, 2011; Samsuudin, Wijaya, & Sukiman, 2010; Husain & Kinasih, 2010). Thus, the SF schemes should be a pioneer for the recognition of community spatial planning in accordance with their *adat* system.

SF schemes that have been developed also require strong institutional arrangements. Nevertheless, the government has tended to establish a new institution, such as LPHN. *Adat* institutions however, are also able to guarantee sustainable forest management as evidenced by various studies on Baduy, Rumahkay, Dayak and Ammatoa communities. Policy makers at any governmental level should consider the local knowledge and the *adat* system to ensure a participatory institution (Asmin et al., 2017a; Asmin et al., 2017b). This was also expressed by Uphoff (1992), who stated that participatory institutions can serve in private and bureaucratic affairs.

The WSFA's support for the implementation of SF schemes was also included as part of forest lands (especially state forest) that had been converted into agricultural lands. Some studies also supported such arguments as Mulyanto & Jaya (2004) and Weatherley-Singh & Gupta (2015), each of which show that these schemes only covered a single perspective through land use change analysis. Even, Hosonuma et al. (2012) concluded that 33% of the deforestation rate was due to utilizing forested lands for subsistence agricultural practices. The low quality of human resources was also considered as triggering deforestation rates (Salahodjaev, 2016). This may have led to our perception that forest-dependent farmers are most likely the cause of forest degradation and deforestation. However, Asmin et al. (2016) have provided an explanation from a sociological perspective to understand the causes of forest degradation in the case of the Simancuang community of South Solok District, West Sumatra. In the context of the state claim over the forest areas, Mutolib et al. (2017) also indicated that forest degradation and deforestation were encouraged by forest seizures by local communities against the state claim over the forest area. Indeed, forest degradation and deforestation could be due to the allocation of local lands to plantations and timber companies.

The will of the WSFA to help communities with various development assistance programs provides hope for community development in the context of forest resource management. The WSFA's role in embracing various stakeholders presents a unique willingness of formal institutions to collaborate with other stakeholders. Muttaqin et al. (2017), conducting research in Central Kalimantan's Buntoi Village Forest, suggested the need for development assistance programs to gain support from local government. However, disingenuous government approaches to realize their programs will lead to the failure of SF schemes.

SF policy should not only show government willingness to collaborate with local communities, and furthermore indicates increasing appreciation of local knowledge and *adat* systems. In the context of community development, SF schemes can thus be regarded as mainstreaming CBFM, and can continue to be a tool for strengthening community solidarity and agency (Bhattacharyya, 2004). Strengthening solidarity happens through the recognition of local community identities and norms, while strengthening their agency takes place through the optimum local participation to manage forest resources.

The implementation of community development should emphasize participation and empowerment as foundational elements. Participation and empowerment require devolution of control and accountability from the government to individuals, groups, and communities (Narayan, 1995). Participation and empowerment is encouraged by four key aspects (Parks et al., 2013), namely: (1) devolution of authority and resources to key stakeholders, (2) involvement in decision-making, (3) two-way flow of information between resource providers and recipients, and (4)

community contributions to encourage local ownership. The outcome of community development is an empowered community with the following characteristics (Patel, 2011): (1) having access to information, (2) engaging in forums on issues and decision-making, (3) considering options and actions, and (4) having the capacity and resources to institutionalize local community interests and roles towards public institutions.

4. Conclusions

SF policy in West Sumatra consists of a form of CBFM mainstreaming taking place through the implementation of specific schemes on community plantation forests (HTR), community forests (HKm), village forests (HD), and customary forests (HA). The governmental arguments for the policy are based on interests in addressing state forest conflicts, reducing threats to forest degradation and deforestation, and conditions of lacking the human resources (forestry officers) in overall forest management. WSPG, through WSFA, has encouraged community involvement in forest management in the form of these SF schemes, especially for ensuring the LFR and FPS activities. WSFA has supported various SF schemes by coordinating the roles of the parties, whether governmental agencies, the private sector, or NGOs. Nevertheless, there are challenges to developing the SF schemes that should be addressed. These challenges include: (1) granting the management rights that ensure the recognition of community-based spatial planning, (2) developing a participatory institution, (3) synchronizing the government policies to control forest degradation and deforestation, and (4) initiating development assistance programs that strengthen local community solidarity and agency.

Government officials should consider adaptive ways of initiating SF schemes that appreciate local community norms and values through the recognition of local knowledge and *adat* systems. In the context of community development, the success of SF schemes should not only be measured by the realization of development assistance programs after the granting of management rights, but also the enhancement of local community solidarity based on its cultural strength and the recognition of community capacity within the established social system.

Acknowledgments

We would like to thank the Indonesian Endowment Fund for Education (LPDP) of the Ministry of Finance, for supporting this research. We would also like to thank Koto Malintang and Simancuang people, especially *adat* leaders, village leaders, and local informants for helping us to provide the data and information, as well as the non-governmental organization of KKI Warsi and West Sumatra Forestry Agency.

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